

## The type material of South African marine Mollusca in the Natal Museum collection. Part 1. Bivalvia

by

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### SYNOPSIS

The type material of marine Bivalvia in the Natal Museum collection is reviewed, and taxonomic notes given where relevant. Lectotypes are designated for *Plicatula squamosissima* E. A. Smith (Plicatulidae), *Scintilla compta* Sowerby and *S. durbanensis* Sowerby (Galeommatidae), *Basterotia tricastalis* Sowerby (Sportellidae), *Tellina candidata* Sowerby (Tellinidae), *Cytherea (Tivela) alucinans* Sowerby (Veneridae), *Clistoconcha insignis* E. A. Smith (Laternulidae) and *Saxicava arenacea* E. A. Smith (Hiatellidae); a lectotype for *Deltaodon tugelae* Barnard (Arcidae) in the South African Museum collection is also designated.

The following new synonymies are proposed: *Chama ratoi* Boshoff, 1965 = *Chama plinthota* Cox, 1927 = *Chama savignyi* Lamy, 1921 (Chamidae); *Tellina pellucida* Philippi, 1843 (non Brocchi, 1814) = *Macoma retrorsa* (Sowerby, 1867) (Tellinidae); *Myadora rectangulata* Barnard, 1964 = *M. quadrata* E. A. Smith, 1899 (Myochamidae).

New combinations: *Leda parceplicata* Barnard, to *Portlandia* (Nuculanidae); *Lucina sudes* Barnard, to *Gonimyrtea* (Lucinidae); *Montacuta siliqua* Barnard, to *Nipponomysella*, *Montacuta ornata* Barnard, to *Barrimysia* (*Callomysia*) (Montacutidae).

Brief notes are also given on the genera *Lutraria* (Mactridae) and *Pinctada* (Pteriidae) in South African waters.

The inadequacy of the original descriptions of so many South African species renders the re-examination of types essential, at the very least to confirm the correctness of subsequent identifications, and, in the cases of unique types, to establish whether they have even been referred to the correct genera. Unfortunately these types are so widely dispersed among the institutes of the world that detailed data are not easy to accumulate. As a start, it is first necessary to examine thoroughly those types that are available within the country. While the number of types held by the Natal Museum is by no means extensive, it does contain a number of most interesting and poorly known species. In order to render the present account more than just a catalogue of specimens, I have included, wherever possible, notes on taxonomy and other relevant aspects.

For the most part (non-marine and foreign species excluded) these types may be grouped thus, according to source:

(1) Types from the H. C. Burnup collection. Most of Burnup's marine shells were sent to J. H. Ponsonby for identification, the latter passing on any novelties initially to G. B. Sowerby (3rd), later to E. A. Smith, for recording and description. Syntypes were divided by Burnup between the British Museum (Natural History) and the Natal Museum. In later years material was sent to J. R. le Brockton Tomlin for identification. Of the species he described, the holotypes were all retained by the author and are presumably now in the Cardiff Museum, although paratypes of most were returned and subsequently presented by Burnup to the Natal Museum.

(2) Paratypes of some species dredged in Natal waters by the s.s. *Pieter Faure*, and described by K. H. Barnard (1962, 1964). Holotypes are in the South African Museum collection.

(3) Paratypes of two bivalves described from Inhaca Island, Moçambique by P. H. Boshoff (1965). Holotypes are in the Marine Biological Station of Inhaca.

(4) Types of species described by the present author (no Bivalvia).

In this account N.M. = Natal Museum, Pietermaritzburg, and S.A.M. = South African Museum, Cape Town.

#### CLASS BIVALVIA

##### Family Nuculanidae

##### *Leda parceplicata* Barnard, 1964

*Leda parceplicata* Barnard, 1964: 21, fig. 4 b.

*Status*: a species *inquaerenda*, referable to the genus *Portlandia*.

*Types in N.M.*: paratopotypes, 3 complete, 2 left valves, 1 right valve; No 4089/T1075 (ex S.A.M. A 9465).

*Type locality*: off Umdloti River, 40 fathoms.

*Remarks*: As admitted by Barnard, this species agrees very closely with *Yoldia semisculpta* Thiele (in Thiele & Jaeckel 1931: 207, pl. 8. fig. 66, 66 a) from the Zanzibar Channel. Barnard separated it on account of the absence of a posterior gape, supposedly characteristic of *Yoldia*. However, not only is there no mention of a gape in Thiele's description of *semisculpta*, but Puri (in Moore 1969: 239) indicates this to be a variable feature in the genus *Yoldia*. As *parceplicata* is less than half the size of *semisculpta* the former must be retained *pro tem.*, at least until larger examples are found in South African waters, and the holotype of *semisculpta* has been re-examined.

As was noted by Dall (1886: 253), dividing lines between the various nuculanid genera are not very sharply drawn. However, the present species seems to be a fairly typical member of the genus *Portlandia* Mörch, 1857.

*Revised name*: *Portlandia (Portlandia) parceplicata* (Barnard, 1964) **comb. nov.**

##### *Sarepta natalensis* Barnard, 1964

*Sarepta natalensis* Barnard, 1964: 22, fig. 4 a.

*Status*: a species *inquaerenda*.

*Types in N.M.*: paratypes, two right valves, No 4090/T1076 (ex S.A.M. A 9470), off Tugela River in 65–80 fathoms.

*Type locality*: off Cape Natal (Durban Bluff) in 48 fathoms.

*Remarks*: Barnard commented on the resemblance of his species to the Japanese *Sarepta speciosa* A. Adams (1860: 303), type-species of the genus. In my opinion, none of the available figures and descriptions (A. Adams 1868: 41, pl. 4, fig. 1; Thiele 1934: fig. 790; Habe 1958: pl. 11, figs. 5, 6; Habe 1964: pl. 48, fig. 22) show any discernible differences from South African specimens. However, until topotypic material of *speciosa* is available for comparison, the name *natalensis* may be retained.

## Family Limopsidae

*Limopsis natalis* Barnard, 1964

*Limopsis natalis* Barnard, 1964: 23, fig. 4 e, f.

*Status*: apparently valid.

*Types in N.M.*: paratype, one right valve, No 4091/T1077 (ex S.A.M. A 9481), from off Umkomaas in 40 fathoms.

*Type locality*: off Neill (O'Neil) Peak (28° 40' S) in 40 fathoms.

*Remarks*: The presence of internal crenulations on the ventral margin suggest that the subgenus *Pectunculina* D'Orbigny, 1843, is the most suitable situation for the present species. In other respects, notably the reduced number of hinge teeth, *natalis* is more reminiscent of the genus *Nipponolimopsis* Habe, 1951, than of *Limopsis*. However, it still remains to be shown whether the type series of the present species is fully adult.

*Revised name*: *Limopsis (Pectunculina) natalis* Barnard, 1964.

## Family Arcidae

*Deltaodon tugelae* Barnard, 1962

*Deltaodon tugelae* Barnard, 1962: 249, text figs 2 a-e.

*Status*: valid.

*Types in N.M.*: two paralectotypes, No 4001/T1013 (ex S.A.M. A 9477), consisting of a right and a left valve, from a bottom sample 'off Natal'.

*Type locality*: 'Natal'.

*Remarks*: The right valve figured by Barnard as his fig. 2e has now been recatalogued as S.A.M. A 31736 (Mr B. F. Kensley, *in litt.* 15/iv/72), and is here designated as lectotype. According to Barnard, this valve measures 20 × 16 mm.

The present species is the type of the genus *Deltaodon* Barnard, 1964. This taxon appears to be a valid one, although there is a marked resemblance to the Australian *Samacar* Iredale, 1936. It differs from the latter in its deeper hinge and the absence of an edentulous gap separating the two series of hinge teeth.

Barnard's choice of specific name was singularly unfortunate, as there is no evidence for the occurrence of the species in the Tugela area. I have recently seen a valve attached to a *Xenophora pallidula* (Reeve), trawled in shallow water off the Zambesi Delta in Mozambique.

## Family Pteriidae

*Margaritifera natalensis* Jameson, 1901

*Pinctada nigra*; Ranson, 1961: 29 (synonymy and references), pl. 14-16, text figs 7-8.

*Margaritifera natalensis* Jameson, 1901: 382.

*Pinctada capensis* var. *natalensis*; Barnard, 1964a: 414.

*Pinctada anomoides* (non Reeve); Barnard, 1964a: 414.

*Pinctada capensis* (partim non Sowerby); Boshoff, 1965: 122.

*Status*: a synonym of *Pinctada nigra* (Gould), according to Ranson (1961).

*Types in N.M.*: one paratopotype (No 2348/T698), ex Burnup coll.

*Type locality*: Umkomaas.

*Remarks*: Although Barnard (1964a) listed *natalensis* merely as a 'variety' of *Pinctada*

*capensis* (Sowerby), in fact it bears little resemblance to that species, and Ranson (1961) was undoubtedly correct in synonymizing it with the Indo-Pacific *nigra*. Three species of *Pinctada* Röding, 1798, can be recognized in South African waters, and these may be keyed out as follows:

1. Shell thick and solid; ligament narrowly elliptical; hinge teeth obsolete in adults; nacre usually tinged with grey towards its margin; external growth lamellae conspicuous over whole shell; range: Danger Point to Moçambique.....

***capensis* (Sowerby 1889)**

Shell thin and fragile; ligament linear; hinge teeth retained in adults; nacre not tinged with grey marginally; growth lamellae only visible towards margins.... (2)

2. Growth processes showing series of regular V-shaped transverse white marks; rayed or mottled with brown; dorsal lobe of adductor muscle scar short; range: Indo-Pacific to Durban, also Mediterranean and tropical west Atlantic.....

***radiata* (Leach 1814)**

Growth processes without such markings; colour usually black with cream rays, sometimes uniform black, sometimes translucent and almost colourless, with traces of broken cream rays; dorsal lobe of adductor muscle scar prominent and digitiform; range Indo-Pacific to Cebe (Transkei) ..... ***nigra* (Gould 1850)**

The pale form of *nigra* mentioned above is apparently the basis for Barnard's listing of *P. anomoides* (Reeve, 1857) from South Africa. Such specimens at first sight may appear to differ greatly from typical examples of *nigra*, particularly as they tend to be flatter and more inequivalve than the latter, yet the two forms may be found side by side in the field, together with a range of intermediates. *P. nigra* is common in Natal, particularly on the submerged inner faces of swimming-baths, where it may form very dense colonies. *P. radiata*, on the other hand, is rather rare locally and most specimens have been found by skin-divers.

The paratype of *natalensis* is a complete but slightly broken shell, measuring  $65,8 \times 55,3$  mm. It displays the typical purplish-black and off-cream coloration of *nigra*.

*Revised name: Pinctada nigra* (Gould, 1850).

#### Family Plicatulidae

##### *Plicatula squamosissima* E. A. Smith, 1899

*Plicatula squamosissima* Smith, 1899: 251, pl. 5, figs 15, 16; Turton, 1932: 222; Barnard, 1964a: 434; 1965: 138; Boshoff 1965: 138.

*Plicatula australis* (non Lamarck); Krauss, 1848: 30.

*Status: valid.*

*Types in N.M.:* four syntypes (2397/T697), one of which is here designated as lectotype and segregated as No A 119/T 1710.

*Type locality:* 'Unkomaas' (= Umkomaas).

*Remarks:* The lectotype, which consists of left (upper) valve and umbonal portion of right (lower) valve, measures  $19,7 \times 16,5$  mm. Of the three paralectotypes, one retains the hinge region of the right valve, and the others consist of left valves only.

Several writers have speculated on the identity of the solitary juvenile recorded from Durban Point by Krauss (1848) under the name *P. australis* Lamarck, 1819. Lamy (1919)

regarded this identification as correct, although he had evidently never seen Krauss's shell. I believe that the latter can be referred only to Smith's *squamosissimum*. Although Barnard (1964a) thought that Smith's species would probably prove to be a synonym of *australis*, available evidence indicates that they are separable. Lamy fortunately recorded that the unfigured holotype of *australis* agreed with Sowerby's 1847 figures of Philippine shells (pl. 91, figs 20–22); he further noted the presence of well-developed spinose scales and distinct intermediary radial striae in the species. In contrast, in all *squamosissima* examined the whole surface (including the intervals between the ribs) is covered by low, imbricate squamae. Only in a few young specimens from a sheltered, rather muddy swimming bath are the scales raised in some semblance of spines. Radial ribs are also finer than in Sowerby's figures of *australis*.

The N.M. has specimens of *P. squamosissima* from Inhaca Island (Moçambique), Durban, Isipingo, Scottburgh, Umkomaas and Port Alfred. It inhabits the undersides of rocks in low tide pools, often where there is an abundance of fine silt.

#### Family Lucinidae

##### *Phacoides sudes* Barnard, 1964

*Phacoides sudes* Barnard, 1964: 25, fig. 6 a.

*Status*: apparently valid, referable to the genus *Gonimyrtea*.

*Types in N.M.*: paratopotypes, one right valve, one left, No 409A/T 1080 (ex S.A.M. A 9531).

*Type locality*: off Cape Natal (Durban Bluff) in 54 fathoms.

*Remarks*: Barnard's statement that there is only one cardinal tooth in each valve is incorrect. In the left valve there are two slightly divergent trigonal cardinal teeth, the anterior one slightly the stronger. In the right valve there is only one, although a second cardinal is simulated by the projecting inner edge of the lunule, which is joined to the true cardinal just below the umbo by a slender isthmus. The lunule is lanceolate in outline and markedly asymmetrical. In the right valve the anterior lateral is strong, the posterior one weaker, and on both sides the dorsal margin projects slightly so that the laterals appear to be paired; in the left valve the two laterals are very weak.

Under the system of Chavan (in Moore 1969) the present species can be referred to the genus *Gonimyrtea* Marwick, 1929, although it seems doubtful whether the latter should be regarded as anything more than a subgenus of *Myrtea* Turton, 1822.

*Revised name*: *Gonimyrtea sudes* (Barnard, 1964), **comb. nov.**

##### *Phacoides sepes* Barnard, 1964

*Phacoides sepes* Barnard, 1964: 25, fig. 6 b.

*Status*: apparently valid, but generic position needing investigation.

*Types*: one paratopotype, a right valve, No 4093/T 1079 (ex S.A.M. A 9529).

*Type locality*: off Morewood Cove (Umhlali district) in 27 fathoms.

*Remarks*: The present species does not agree exactly with any described lucinid taxon, and a new genus may have to be formed for it.

## Family Thyasiridae

*Thyasira unilateralis* Barnard, 1964.

*Thyasira unilateralis* Barnard, 1964: 24, fig. 5 a.

*Status:* apparently valid.

*Types:* one paratype, a right valve, No 4092/T 1078 (ex S.A.M. A 9523) from off Hood Point, East London, in 49 fathoms.

*Type locality:* Off Neill Peak, Zululand, in 90 fathoms.

*Remarks:* The following details may be added to Barnard's very brief description. Lunule ill-defined, cordiform. Right valve with a small pseudocardinal immediately below the umbo. Ligament and resilium in a deep internal groove lying parallel to dorsal margin.

## Family Montacutidae

*Montacuta siliqua* Barnard, 1964.

*Montacuta siliqua* Barnard, 1964: 26, fig. 6 e, f.

*Status:* valid, referable to genus *Nipponomysella*.

*Types in N.M.:* one paratopotype (a left valve), No 4096/T 1082 (ex S.A.M. A 9538).

*Type locality:* Off Umdloti (Umhloti) River in 40 fathoms.

*Remarks:* This differs from members of the genus *Montacuta* Turton, 1822, in shape and in the virtual absence of teeth in the right valve. In the latter character, in the presence of two strong unequal hinge lamellae in the left valve and in the oblong outline, *siliqua* agrees well with *Nipponomysella* Habe, 1959. The only possibly discordant feature is the development of a small denticle on the anterior border of the right resilifer; this, however, can hardly be regarded as a hinge tooth.

The following details may be added from the present paratype. Left valve with the anterior hinge lamella short and elevated into a narrowly triangular projection; posterior lamella somewhat longer and more cuneiform; dorsal margin slightly incurved above each lamella; these lamellae are separated beneath the umbo by a rather deep resilifer.

In Barnard's description of this and the following the right valve has been mistaken for the left, and vice versa.

*Revised name:* *Nipponomysella siliqua* (Barnard, 1964) **comb. nov.**

*Montacuta ornata* Barnard, 1964

*Montacuta ornata* Barnard, 1964: 26, fig. 6 c, d.

*Status:* valid, presumably referable to the genus *Barrimysia*, subgenus *Callomysia*.

*Types in N.M.:* one left valve, a paratopotype (No 4095/T 1081, ex S.A.M. A 9538).

*Type locality:* Off Undloti River in 40 fathoms.

*Remarks:* Only left valves (not right as stated by Barnard) are known, and in the absence of full hinge details the species cannot be transferred to any genus with certainty. However, the crenuled margin separates it from *Montacuta* and suggests *Barrimysia* Iredale, 1929; following the system of Chavan (in Moore 1969) it would agree with the subgenus *Callomysia* Habe, 1851, in its oblong, inequilateral shape and oblique terminal riblets. It should be noted that whereas strong internal marginal crenations only occur posteriorly and anteriorly (corresponding with the external riblets), when viewed in oblique light the whole

ventral margin of the paratype seems to show traces of feeble plications.

*Revised name: Barrimysia (Callomysia) ornata* (Barnard, 1964) **comb. nov.**

Family Galeommatidae

*Scintilla compta* Sowerby, 1897

*Scintilla compta* Sowerby, 1897: 26, pl. 6, fig. 28; Turton, 1932: 237.

*Status: valid.*

*Types in N.M.:* one syntype (No 1991/T 690), ex Burnup coll., here designated as lectotype.

*Type locality:* Durban.

*Remarks:* The lectotype, a perfect specimen, measures  $11,3 \times 7,6$  mm. To Sowerby's description must be added the following. Sculpture of coarse growth lines only. Left valve with a strong peg-like median cardinal, joined dorsally to a weak, slightly divergent anterior tooth (which could possibly be regarded as a lateral); posteriorly there are two divergent ridge-like laterals joined at their anterior ends. Right valve with a prominent triangular peg-like cardinal anteriorly and a low elongate lateral posteriorly. Resilium slender and oblique, ending under posterior laterals.

Although *compta* will possibly prove to be wrongly located in the genus *Scintilla*, a final decision should await the revision of the whole *Scintilla*-complex in South Africa.

*Scintilla durbanensis* Sowerby, 1897

*Scintilla durbanensis* Sowerby, 1897: 26, pl. 8, figs 22, 23; Turton, 1932: 237.

*Solecardia durbanensis*; Barnard, 1964a: 483.

*Status: valid, generic position needing investigation.*

*Types in N.M.:* one syntype (No 1996/T 691), ex Burnup coll., here designated as lectotype.

*Type locality:* Durban.

*Remarks:* The lectotype, a complete specimen, measures  $9,9 \times 5,6$  mm.

Sowerby's description is scanty and the following must be added: Growth lines rather coarse, surface irregularly and finely punctured, except for a smooth ray running from umbo to midventral margin. Right valve with a strong peg-like main cardinal and a smaller one adjacent to it posteriorly, the two being joined dorsally; no distinct anterior lateral, posterior lateral long, cut transversely to form two elongate denticles arranged in series. Left valve with a strong triangular cardinal and a second one, similar in shape but weaker, set at a slight angle just anterior to it; no anterior laterals, posterior lateral thin and ridge-like. Ligament almost entirely external.

The generic position of this species is doubtful; it is certainly not congeneric with the previous species. It is not referable to the genus *Solecardia*, which Chavan (in Moore 1969) places in the Leptonidae.

Family Sportellidae

*Basterotia tricostalis* Sowerby, 1897

*Basterotia tricostalis* Sowerby, 1897: 21, pl. 8, figs. 14, 15; Turton, 1932: 237.

*Status: valid.*

*Types in N.M.:* one syntype (No 1715/T 694, ex Burnup coll.), here designated as lectotype.

*Type locality:* Durban.

*Remarks:* The lectotype is a complete specimen measuring  $12 \times 7 \times 6,6$  mm (valve together), the length and height being those given by Sowerby. His description and figures are adequate.

*B. tricostalis* is a rather rare species, and, apart from Turton's Port Alfred shells, seems to be known only from the type locality.

Family Mactridae

*Lutraria inhacaensis* Boshoff, 1965

*Lutraria inhacaensis* Boshoff, 1965: 175, pl. 8, fig. 2, pl. 14, figs 4, 5.

*Status:* a species *inquaerenda*.

*Types in N.M.:* two paratypes (T 1124), consisting of one complete example (No 4242) and a single valve (8278).

*Type locality:* Inhaca Island, Delagoa Bay.

*Remarks:* Specimens in the N.M. from Durban, and Spry's figure (1964: pl. 8, fig. 174) of a Dar-es-Salaam shell show the present form to have a wide East African distribution. In view of the considerable variation in shell outline shown by members of this complex it is most unlikely that the name can be maintained. Final resolution is, however, greatly hindered by the inadequacy of published descriptions and figures of Indo-Pacific members of the genus and the scarcity of material.

Of the three recent species of *Lutraria* listed by Barnard (1964a) from South Africa, the identity of only one (*L. lutraria* (Linn., 1758)) is acceptable. The species there recorded as *angustior* Philippi, 1844, differs from that European species in its non-confluent pallial sinus and line, and in its markedly more ovate shape and rounded ventral margin. Similarly his '*Lutraria? oblonga* (Chemn. Gmelin)' [= *L. magna* (Da Costa, 1778)] differs from European examples of that species in hinge details and in the non-confluent pallial line and sinus. Boshoff quite correctly separated his Inhaca material from these, but neglected to compare it with the true *Lutraria magna* or its allies, to which it shows a close affinity. Lamy, 1918, recognized two 'varieties' of the European *L. magna* from the Indo-Pacific region, namely *australis* Reeve, 1854 (= *turneri* Jouss., 1891) and *arcuata* Reeve, 1854, both well separated from *magna* by the obsolescence of the posterior cardinal in the right valve, a feature which also characterizes *inhacaensis*. Several other names may prove relevant as well, the earliest being *rhynchaena* Jonas, 1844. It is, however, impossible at this stage to propose a formal synonymy.

Of the six local specimens of this complex available, all show a more or less angular anterior end, characteristic of *inhacaensis*. This is least marked in one Durban shell which has the general shape (notably the concave posterodorsal line) of *arcuata*. A second Durban shell resembles in outline (but apparently not in hinge details) Reeve's figure (1854: pl. 5, fig. 18) of *L. maxima* Jonas; a similar shell was figured by Boshoff (plate 6, bottom right) as one of the types of *inhacaensis*. Although no figure of the holotype of *inhacaensis* has yet been published as such, the N.M. paralectotypes, together with a further right valve from Inhaca and a complete shell (or two closely matching valves) from Durban, may be regarded as typical. Among these variation in detail of outline is considerable, one shell showing features almost suggestive of *arcuata*, another approaching Macpherson & Gabriel's figure (1962: fig. 428) of *rhynchaena*, which in turn does not very much resemble



the figures of Reeve (1854: pl. 4, fig. 15) or Cotton (1961: fig. 326) of the same species, which seem to be indistinguishable from *arcuata*!

*Revised name: Lutraria (Psammophila) inhacaensis* Boshoff, 1965.

#### Family Tellinidae

##### *Tellina (Macoma) candidata* Sowerby, 1894

*Tellina pellucida* (non Brocchi, 1814, nec T. Brown, 1827) Philippi, 1843: 8, pl. 5, fig. 4; Sowerby, 1867: pl. 29, fig. 162; Odhner, 1919: 27.

*Tellina retrorsa* Sowerby, 1867: pl. 41, fig. 234; E. A. Smith, 1901: 116; Barnard, 1964a: 548, fig. 31g.

*Tellina (Macoma) candidata* Sowerby, 1894: 375; 1897: 23, pl. 6, fig. 25; Turton, 1932: 250.

*Status:* a synonym of *Macoma retrorsa* (Sowerby).

*Types in N.M.:* one syntype (here designated as lectotype), N.M. No 1816/T 1712; leg. Mrs M. Trotter, Burnup coll.

*Type locality:* Durban.

*Remarks:* The lectotype, which consists of both valves, measures  $15.9 \times 11.6$  mm (Sowerby:  $16 \times 12$  mm); the margin of the right valve shows a slight chip and the umbo has been bored by a naticid. Sowerby's figure is inaccurate in that it shows a shell which is slightly too elongate for the proportions cited and shows no sign of the characteristically peaked umbones.

E. A. Smith (1901) showed *candidata* to be a synonym of *Tellina retrorsa* Sowerby, 1867, after comparison of types of the two. Sowerby's type figure of *retrorsa* illustrates a shell rather more abbreviated than most, but otherwise quite recognizable, and in fact far closer in form to the lectotype of *candidata* than Sowerby's figure of the latter species.

Odhner (1919) suggested that *candidata* might prove to be a synonym of *Tellina pellucida* Philippi, 1843. Philippi's beautiful figures show this surmise to be correct. Sowerby's 1867 figure of *pellucida* also agrees. Unfortunately this name is twice pre-occupied. Philippi's type was unaccompanied by locality data, but Sowerby's shell came from the Bay of Manila, Philippines. Although Talavera & Faustina (1932: 22, pl. 9, figs 1, 2) describe and figure an edible *Macoma* from Manila as *M. pellucida*, this appears to be a misidentification as their shell differs in the situation of the umbo and in the extent of the pallial sinus. Odhner's record from Madagascar breaches the distribution gap. The N.M. has series from Durban Bay, Lake St Lucia and off Umhlanga Rocks in 12–15 fathoms.

Although *M. retrorsa* does show considerable variation in shape, Barnard's outline diagram of his idea of the species depicts an unusually oblong shell with depressed umbo and evenly rounded ventral margin, scarcely resembling any available specimens. His material should be checked.

The right valve in *retrorsa* is slightly flatter than the left, suggesting that it can be referred to the subgenus *Salmacoma* Iredale, 1929.

*Revised name: Macoma (Salmacoma) retrorsa* (Sowerby, 1867).

##### *Tellina europisthus* Barnard, 1964

*Tellina (Cadella) semen*; Boss, 1969: 136 (references and synonymy), pl. 14, fig. 5, pl. 15, figs 1–4 (including syntype of *europisthus*).

*Tellina europisthus* Barnard, 1964: 27, fig. 5 c.

*Status:* a synonym of *T. semen* Hanley, according to Boss, 1969.

*Types in N.M.:* two paratopotypes (N.M. No 4098/T 1084), both right valves, ex S.A.M. A 9549.

*Type locality:* off Cape Natal in 54 fathoms.

*Revised name:* *Tellina (Cadella) semen*, Hanley, 1844.

*Tellina acropisthus* Barnard, 1964

*Tellina staurella*; Boss, 1969: 95 (synonymy), pl. 2, fig. 2, pl. 3, figs 1, 2 (holotype of *acropisthus*), pl. 4, fig. 2. *Tellina acropisthus* Barnard, 1964: 27, fig. 5 b.

*Status:* a synonym of *T. staurella* Lamarck, according to Boss, 1969.

*Types in N.M.:* one paratotype (N.M. No 4097/T 1083), a right valve, ex S.A.M. A 9549.

*Type locality:* off Cape Natal in 54 fathoms.

*Remarks:* Boss (1969) has very lucidly set out the differences between *Tellina staurella* Lamarck and *virgata* (Linn.), but, in the present author's opinion, has erred in recording the latter from South Africa. No sign of *virgata* has been found in Natal by myself, or, as far as can be determined, any other collector, nor was it even found at Inhaca Island by Boshoff or by myself. According to material in the old Burnup collection, Sowerby's 1897 record of *virgata* was actually based on specimens of *staurella*. Although Boss figured (pl. 2, fig. 1) a specimen of *virgata* with the caption 'Durban, N.M.' no such specimen is recorded in the text, nor can it be traced in the N.M. collection. The sole basis, therefore, for including *virgata* in the South African fauna list rests on the vague locality 'Natal (USNM)' cited by Boss.

*Revised name:* *Tellina (Tellinella) staurella* Lamarck, 1818.

Family Donacidae

*Donax simplex* Sowerby, 1897

*Donax simplex* Sowerby, 1897: 23, pl. 8, figs 18, 19.

*Donax aemulus* (partim); Barnard, 1964a: 527.

*Status:* apparently valid.

*Types in N.M.:* one syntype (No 1822/T 689).

*Type locality:* 'Umzinto'; the above syntype bears the locality Umkomaas.

*Remarks:* The present species, together with *D. elegans* Odhner, 1919, and *productus* Odhner, 1919, from Madagascar, was regarded by Barnard (1964a) as a synonym of *D. aemulus* E. A. Smith, 1877, from Moçambique. However, three or four distinct species have been confused. These may be separated thus:

(1) *Donax productus*. This resembles *simplex* in its small size, but differs from all the other species listed in the total absence of concentric ridges on the posterior slope. These are present in the following at all stages of growth.

(2) *Donax lubricus* Hanley (1845: 17), of which *elegans* is an undoubted synonym. This differs from the following in its much larger adult size (over 20 mm) and totally different shape. It was well-figured by Reeve (1854: pl. 7, fig. 46) and Satyamurti (1956: pl. 22, fig. 5). The N.M. has material from Durban, Isipingo, Richard's Bay, Inhaca, Pungwe River mouth and Bazaruto Island. A form with a rounder and more abbreviated

posterior ventral corner and slightly more convex valves also occurs in Moçambique, but the two seem to intergrade. *D. lubricus* was recorded from Natal by Sowerby (1897: 23). It is possibly now extinct in Natal waters, as no specimens appear to have been found in recent years, at all events in the vicinity of Durban. This in itself is adequate proof that it is not the adult of *simplex*. Nor is *lubricus* a synonym of *D. cuneatus* Linn., 1758 (= *bicolor* Gmel, 1790) as some authors have suggested. The latter, which differs in the total absence of crenules on the inner ventral margin of the valves, occurs at Inhaca, a single valve being present amongst the material recorded by Boshoff (1965: 179) as *aemulus* (the remainder are *lubricus*).

(3) *D. simplex*. This, as far as is known, is endemic to Natal, material in the N.M. ranging from Isipingo to Port Shepstone. It is distinguished by its small adult size (less than 10 mm) and very tumid valves; the surface is smooth, apart from fine radial lirae and coarse concentric ridges posteriorly (although the whole surface may appear to be radially striate, this is not a surface feature but an integral part of the shell substance).

(4) *D. aemulus*. This may prove to be indeed a juvenile of *elegans* (= *lubricus*) as claimed by Barnard; however a worn valve from Lourenço Marques, apparently referable to this species, shows stronger radial sculpture than juvenile *lubricus*. *D. aemulus* was recorded from Durban by Sowerby (1894: 376), but nothing similar has been seen by me from Natal. It seems to differ from *simplex* (which is of similar size) in its more compressed valves, and more acute umbones and in the presence of radial striae throughout.

*Revised name: Donax (Donax) simplex* Sowerby, 1897.

#### Family Veneridae

##### *Cytherea (Tivela) alucinans* Sowerby, 1897

*Tivela natalensis*; Fischer-Piette & Fischer, 1942: 20 (references and synonymy); Barnard, 1964a: 507; Fischer-Piette, 1968: 787.

*Meretrix zonaria* (non Lamarck); Sowerby, 1894: 377 (fidé Sowerby 1897: 24).

*Cytherea (Tivela) alucinans* Sowerby, 1897: 24, pl. 7, figs 5, 6.

*Status: a synonym of Tivela natalensis* Dunker.

*Types in N.M.:* two syntypes (No 1875/T 1668) of which one is here designated as lectotype (No A 120/T 1709).

*Type locality:* 'Natal', = Durban, according to the syntype label.

*Remarks:* Both syntypes are young, the lectotype measuring  $37,9 \times 30,7 \times 18,3$  (both valves together).

Specimens of *Tivela natalensis* are present in the N.M. collection from Durban, Park Rynie, Kelso and Sezela. Barnard (1964a) quite correctly doubted the validity of records from Port Alfred and Jeffrey's Bay which seem to be well outside the range of the species. On the other hand, it is recorded from as far north as Inhambane and Santa Carolina Island by Fischer-Piette (1968). There is a specimen in the Burnup collection labelled Mauritius, but the locality is doubtful.

The type locality of *T. natalensis* was 'in portu Natalensi' (i.e. Durban Bay) (Dunker 1858: 69).

*Revised name: Tivela (Tivela) natalensis* Dunker, 1858.

## Family Chamidae

*Chama ratoi* Boshoff, 1965

*Chama imbricata* (non Lamarck, 1801) Broderip, 1835: 149; 1835a: 304, pl. 39, fig. 2; Reeve, 1846: pl. 1, fig. 3, pl. 6, fig. 3 b; Lamy, 1927: 321; Orr-Maes, 1967: 160, pl. 22 g *syn. nov.*  
*Chama imbricata* var. *savignyi* (Jousseume M/S) Lamy, 1921: 238; Lamy, 1927: 348.  
*Chama plinthota* Cox, 1927: 98; Habe, 1964: 186, pl. 57, fig. 16. *syn. nov.*  
*Chama ratoi* Boshoff, 1965: 151, pl. 4, fig. 2. *syn. nov.*

*Status*: a synonym of *C. savignyi* Lamy.

*Types in N.M.*: 10 paratypes (No 4243/T 1125), nine complete, plus one left valve.

*Type locality*: Inhaca Island.

*Remarks*: The Chamidae must surely rank as the most difficult of the Bivalvia to resolve into biological species. With few exceptions species have been created along the strictest typological lines, without regard for the enormous variation produced by ecological conditions, mode of attachment and age. Modern species concepts, applied to suitably large, well-documented series, will undoubtedly result in a drastic reduction in the number of recognizable species.

While *Chama ratoi* is relatively well defined, specimens from Natal, Guam and Hawaii (N.M. coll.) show it to be widely distributed in the Indo-Pacific. An earlier name must therefore be sought. The species is characterized by the following:

- (1) upper (right) valve with a conspicuous radial groove, cutting off the posterior  $\frac{1}{3}$  or  $\frac{1}{4}$  of the valve;
- (2) sculpture consisting of flattened scales, borne on imbricate lamellae, except on the posterodorsal side of each valve, where only oblique transverse ridges are present;
- (3) posterodorsal inner margin of upper valve usually with a row of feeble purple or purple-brown denticles with white intervals (the denticles corresponding to the external ridges);
- (4) remainder of inner margin smooth or with feeble crenules;
- (5) interior of valves white, blotched with deep purple towards the margins.

These characters also distinguish *Chama imbricata* Broderip, 1935. While the coloured intervals between the denticles on the posterodorsal margin of the upper valve are absent in the lectotype of *imbricata* in the British Museum (Natural History), according to Dr A. C. van Bruggen (pers. comm. 27.vi.72), available material shows this to be rather variable. *C. ratoi* must certainly be regarded as a synonym of *imbricata*. As that name is preoccupied, Cox (1927) proposed the substitute name *plinthota*. The latter must, however, give way to *savignyi* Lamy, 1921, based on a colour form of *imbricata* from Aden. This name may be used *pro tem.*, but it should be noted that there are a number of earlier names which may prove applicable. It is not inconceivable that even *Chama iostoma* Conrad, 1837 (which Lamy, 1927, regarded as a synonym of *C. limbula* Lamarck, 1819) may prove to be an ecomorph or even a gerontic state of the present species.

It would appear that the type series of *rato*i is actually composite. One N.M. paratype (left valve only) shows the strongly fluted sculpture of *Chama brassica* Reeve, 1846, while the 'sinistral' form mentioned by Boshoff is certainly distinct. Unfortunately none of the latter are represented in the present paratype series. Odhner (1918) showed that such inverse forms are referable to a distinct genus, *Pseudochama* Odhner, 1917. The supposedly inverted

specimens of *imbricata* reported by Broderip (1935a) were later separated as a new species (*janus* Reeve, 1847), which was regarded by Odhner as a synonym of *Pseudochama corrugata* (Broderip, 1835a) from the Panama region. Although no *Pseudochama* sp. has officially been recorded from Southern Africa, *P. cristella* (Lamarck, 1819) does occasionally occur, specimens having been examined (N.M.: R.K.) from Durban, Isipingo and Xora River mouth, Transkei. Apart from its inverted form, *cristella* differs from *savignyi* in its finely scaly sculpture, and there are neither posterodorsal transverse ridges nor a radial groove on the upper valve; the colour is orange to purplish-pink, pale outside, deeper inside.

*Revised name:* *Chama savignyi* Lamy, 1921.

#### Family Myochamidae

##### *Myadora rectangulata* Barnard, 1964

*Myadora quadrata*; Knudsen, 1967: 296 (references and synonymy), text fig. 25, pl. 2, figs 19, 20.  
*Myodora* [sic] *rectangulata* Barnard, 1964: 28, fig. 5d. **syn. nov.**

*Status:* a synonym of *Myadora quadrata* E. A. Smith.

*Types in N.M.:* four paratopotypes (No 4099/T 1085) ex S.A.M. A 9556.

*Type locality:* off Neill Peak in 90 fathoms (28° 40' S).

*Remarks:* Barnard compared his new species with *M. quadrata* Smith, 1899, and *M. valdiviae* Jaeckel, 1931, concluding that it differed in its more oblong shape. More recently, Knudsen (1967) has drawn attention to the not inconsiderable variation in outline in *quadrata*, of which *valdiviae* is considered a synonym. From his observations it is apparent that *rectangulata* falls within the range of variation of *quadrata*, and must be rejected as a synonym. Even among the present paratype series there is some variation in shape, the largest agreeing closely in outline with Habe's figures (1950: pl. 4, figs 14–16) of his *M. teremachii*, which is listed by Knudsen as another synonym of *quadrata*.

The only point which requires clarification is the nature of the radial- and micro-sculpture. Both Barnard and Knudsen merely refer to 'fine radials', while Jaeckel adds that in his *valdiviae* fine 'Netzskulptur' is visible under magnification. In the present material the radial sculpture consists of fine, dense riblets, which are rather wavy and tend to divaricate in places; under high magnification each riblet is seen to consist of a series of microscopic transversely-oblong, flat-topped scales, somewhat reminiscent of roof tiles in general appearance, particularly posteriorly, where the radial arrangement becomes less regular. Confirmation of the presence of this microsculpture in the types of *quadrata* and the other species synonymized with it would be of interest.

The range of *Myadora quadrata* is hereby extended from the Northern Indian Ocean (Gulf of Aden, Bay of Bengal, and east of the Somaliland Republic) to the Zululand–East London area. In the southern part of its range it seems to inhabit markedly shallower water than elsewhere, e.g. 36–90 fathoms as against 348–1 134 metres.

*Revised name:* *Myadora (Myadora) quadrata* E. A. Smith, 1899.

#### Family Laternulidae

##### *Clistoconcha insignis* E. A. Smith, 1910

*Clistoconcha insignis* E. A. Smith, 1910: 218, pl. 8, figs 9–9c; Barnard, 1964a: 575 (references and synonymy).

*Status:* valid.

*Types in N.M.:* three syntypes (No 2478/T 693) of which one is here designated as lectotype, and recatalogued as A 121/T 1711.

*Type locality:* Tongaat.

*Remarks:* The lectotype, which measures  $40 \times 33$  mm, is probably the specimen shown in fig. 9 of Smith's plate.

According to the large series from Tongaat, Scottburgh and Port Shepstone in the N.M. collection, Barnard was correct in regarding *Clistoconcha costata* W. H. Turton, 1932, as a synonym. The development of sculpture is highly variable, and traces of coarse radial folds occur not uncommonly in odd individuals.

#### Family Hiatellidae

##### *Saxicava arenacea* E. A. Smith, 1910

*Saxicava arenacea* E. A. Smith, 1910: 215, pl. 8, fig. 7.

*Status:* valid, referable to the genus *Hiatella* Bosc, 1801.

*Types in N.M.:* two syntypes (No 2670/T 692) of which the larger is here designated as lectotype (No 123/T 6709).

*Type locality:* Durban.

*Remarks:* The lectotype measures  $4.4 \times 2.7$  mm. As surmised by Smith, all the material seen by him was juvenile, the species attaining a size of  $8.5 \times 5.5$  mm. Shape does not change with age, nor does the strong hinge tooth found in each valve become obsolete as is generally the rule in the genus *Hiatella*.

This is a rather rare species, known only from Durban and Inhaca Island (N.M. coll.). It lives in small groups on the undersides of rocks lying on muddy sand in sheltered areas.

*Revised name:* *Hiatella arenacea* (E. A. Smith, 1910).

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